

WHAT IS CLAIMED IS:

1. A method for determining whether a test compound has the ability to specifically inhibit the APC, wherein

A) in a primary screening step, a compound is tested for its ability to interfere with binding of CDH1 or CDC20 to the APC or one or more APC fragments by incubating

a) the APC or one or more APC fragments that are able to bind to CDH1 or CDC20 and

b) a peptide with the ability to interfere with binding of CDH1 or CDC20 to the APC

in the presence and in the absence of the test compound, for a period of time sufficient for binding of the peptide of b) to the APC or one or more APC fragments of a), and determining whether the compound competes for the binding, and wherein

B) in a subsequent secondary screening step the compound is tested for its ability to interfere with the activation of the APC by CDH1 or CDC20.

2. The method of claim 1, wherein the APC or one or more APC fragments of a) is APC3 or APC7 or a fragment thereof.

3. The method of claim 1, wherein the peptide of b) is the C-terminal peptide derived from CDH1.

4. The method of claim 3, wherein the peptide of b) has the amino acid sequence as shown in SEQ ID NO:1.

5. The method of claim 1, wherein the peptide of b) is the C-terminal peptide derived from CDC20.

6. The method of claim 5, wherein the peptide of b) has the amino acid sequence as shown in SEQ ID NO:2.

7. The method of claim 1, wherein the primary screening step A) comprises the steps of

a) incubating, in the presence and absence of a test compound, a mixture comprising the APC or the APC fragment and a fluorescence-labeled APC-binding peptide for a period of time sufficient for binding,

b) determining binding of the fluorescence-labeled APC-binding peptide to the APC or the APC fragment by measuring fluorescence polarization in the label; and

c) comparing the fluorescence polarization values obtained in the presence and absence of the test compound, wherein a reduction in the value is indicative of the compound's ability to inhibit binding of the APC-binding peptide to the APC or the APC fragment.

8. The method of claim 7, wherein the mixture in step a) contains holo APC.

9. The method of claim 1, wherein the primary screening step A) comprises the steps of

a) incubating, in the presence and absence of a test compound, a mixture comprising an APC-binding peptide and an APC fragment,

i) wherein the APC-binding peptide and the APC fragment that carry fluorophors forming a fluorescence resonance energy transfer (FRET) pair are incubated for a period of time sufficient for binding, or

ii) wherein the APC-binding peptide and the APC fragment are incubated for a period of time sufficient for binding and subsequently provided with reagents carrying fluorophors forming a fluorescence resonance energy transfer pair,

b) measuring the FRET signal and comparing the FRET signal obtained in the absence and in the presence of the test compound, wherein a reduction in the signal is indicative of the compound's ability to interfere with binding of the APC-binding peptide to the APC fragment.